

HUGHES

Application No. 09/623,977

July 26, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A teleconferencing system comprising a conference bridge having a multichannel connection to each of a plurality of terminal equipments, each multichannel connection comprising a plurality of individual channels, and ~~a~~ each of the plurality of terminal equipments ~~for receiving the~~ receiving the individual channels through a respective one of the multichannel connections, each of the terminal equipments having means to separately process each received channel to provide a plurality of outputs, each output representing one of the other terminal equipments.

2. (previously amended) A system according to claim 1, wherein at least one of the terminal equipments has spatialisation means to combine the outputs representing each terminal equipment to provide a spatialisation output in which each terminal equipment is represented by a virtual sound source.

3. (currently amended) A teleconferencing system comprising a conference bridge having a multichannel connection to each of a plurality of terminal equipments, each multichannel connection comprising a plurality of individual channels, and ~~at least one~~ each of the terminal equipments receiving the individual channels through a respective one of the multichannel connections, each of the terminal

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equipments having means to separately process each received channel to provide a plurality of outputs, each output representing one of the other terminal equipments;

wherein the conference bridge comprises a concentrator, having means to identify the currently active input channels, and to transmit only those active channels over the multichannel connections as the plurality of individual channels, together with control information identifying the transmitted channels.

4. (previously amended) A system according to claim 1, wherein the channel representing a given terminal equipment is excluded from the output provided in that terminal.

5. (previously amended) A system according to claim 4, comprising means in at least one of the terminal equipments for excluding the channel from the processing.

6. (previously amended) A system according to claim 4, comprising means for excluding the channel from the multichannel transmission from the bridge to the respective terminal equipment.

7. (previously amended) A system according to claim 1, provided with selection means whereby the user of an individual terminal can select which channel, or channels, of the plurality of channels are to be output by the user terminal.

8. (previously amended) A system according to claim 1, at least one of the terminal equipments having echo cancellation means comprising means for detecting correlations between the output signal from the at least one terminal equipment and input signals carried on individual input channels to the at least one terminal equipment, the input signals being representative of other terminal equipments, such correlations being indicative of acoustic feedback at the at least one terminal equipment, and means for canceling such feedback signals in the output signal.

9. (previously amended) A system according to claim 8, wherein at least one of the terminal equipment comprises, for each channel of the output signal, a plurality of adaptive filters, each adaptive filter being arranged to model the echo path between a respective input channel and the respective output channel, and for each output channel there being provided a combiner for adding the outputs of the respective plurality of adaptive filters to generate an echo cancellation signal for the respective output channel.

10. (currently amended) A method of providing teleconferencing services to a plurality of terminal equipments ~~each of which receives channels~~, in which a multichannel connection is provided from a conference bridge to each of the plurality of terminal equipments, each multichannel connection comprising a plurality of individual channels, in which each of the plurality of terminal equipments receives the individual channels through a respective one of the multichannel connections and processes each received individual channel separately to provide a plurality of outputs, such output each representing a respective one of the other terminal equipments.

11. (previously amended) A method according to claim 10, wherein the outputs are processed to generate a spatialised output in which each cooperating terminal equipment is represented by a virtual sound source.

12. (currently amended) A method of providing teleconferencing services to a plurality of terminal equipments, in which a multichannel connection is provided from a conference bridge to each of the plurality of terminal equipments, each multichannel connection comprising a plurality of individual channels, in which each of the plurality of terminal equipments receives individual channels through a respective one of the multichannel connections, ~~in which at least one terminal equipment and~~ processes each received individual channel separately to provide a plurality of outputs, such output each representing a respective one of the other terminal equipments;

wherein the conference bridge identifies the currently active input channels and transmits only those active channels over the multichannel connections as the plurality of individual channels, together with control information identifying the transmitted channels.

13. (previously amended) A method according to claim 10, wherein the channel representing a given terminal equipment is excluded from the output provided to that terminal equipment.

14. (previously amended) A method according to claim 10, in which correlations are detected between the output signal from a given terminal equipment and input signals carried on individual input channels to the terminal equipment, the input signals being representative of other terminal equipments, such correlations being indicative of acoustic feedback at the terminal equipment, and cancelling such feedback signals in the output signal.

15. (original) A method according to claim 14, wherein, for each channel of the output signal, an adaptive filter models the echo path between a respective input channel and the respective output channel, and for each output channel the outputs of the respective plurality of adaptive filters are added to generate an echo cancellation signal for the respective output channel.

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16. (currently amended) A teleconferencing system comprising a conference bridge having a multichannel connection to each of a plurality of terminal equipments, each multichannel connection comprising a plurality of individual independent monaural channels, and ~~a~~ each of the plurality of terminal equipments for receiving the individual independent monaural channels through a respective one of the multichannel connections, each of the terminal equipments having means to separately process each received individual independent monaural channel to provide a plurality of outputs, each output representing one of the other terminal equipments.

17. (currently amended) A method of providing teleconferencing services to a plurality of terminal equipments ~~each of which receives individual independent monaural channels~~, in which a multichannel connection is provided from a conference bridge to each of the plurality of terminal equipments, each multichannel connection comprising a plurality of individual independent monaural channels, in which each of the plurality of terminal equipments receives the individual independent monaural channels through a respective one of the multichannel connections, and processes each received individual independent monaural channel separately to provide a plurality of outputs, such output each representing a respective one of the other terminals.

18. (new) A system as in claim 3, wherein the currently active input channels form a subset of input channels of the conference bridge.

19. (new) A method as in claim 12, wherein the currently active input channels form a subset of input channels of the conference bridge.

20. (new) A system as in claim 1, wherein each of the terminal equipments includes a demultiplexer for separating the individual channels received through a respective one of the multichannel connections.

21. (new) A method as in claim 10, wherein each of the terminal equipments includes a demultiplexer for separating the individual channels received through a respective one of the multichannel connections.

22. (new) A teleconferencing system comprising:
a conference bridge including a concentrator that receives a plurality of M input channels, and a plurality of multichannel connections each of which passes a plurality of N individual channels, the N individual channels being a subset of the M input channels;
and

a plurality of terminal equipments each of which is connected to the concentrator of the conference bridge through a respective one of the plurality of multichannel connections passing a plurality of N individual channels, each of the terminal equipments

including a demultiplexer which separates the N individual channels received through the respective one of the multichannel connections.

23. (new) A method of providing teleconferencing services to a plurality of terminal equipments, the method comprising:

providing a conference bridge having a concentrator which receives M input channels, and a plurality of multichannel connections connected to the concentrator, each multichannel connection passing N individual channels, which form a subset of the M input channels, to a respective one of the plurality of terminal equipments; and

receiving the N individual channels through a respective one of the multichannel connections in each of the plurality of terminal equipments and separating the received N individual channels by a respective demultiplexer in each of the plurality of terminal equipments.

24. (new) A system as in claim 22, wherein the concentrator selects and passes as the N individual channels those of the M input channels that are carrying useful information.

25. (new) A method as in claim 23, wherein the concentrator selects and passes as the N individual channels those of the M input channels that are carrying useful information.

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26. (new) A conference bridge for use in a teleconferencing system, the conference bridge comprising:

a plurality of M input channels;

a concentrator coupled to the M input channels for receiving signals provided by M input channels; and

a plurality of multichannel connections coupled to the concentrator, each multichannel connection comprising a plurality of N individual channels passed by the concentrator, the N individual channels being a selected subset of the M input channels, and the N individual channels output by the concentrator in a respective one of the multichannel connections being capable of being demultiplexed.